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SCIENTIFIC BOOKS

The Physiology of Reproduction. By Dr. F. H. A. MARSHALL. Preface by Professor E. A. SCHÄFER, and contributions by Dr. W. CRAMER and Dr. J. LOCHHEAD. London, New York, Longmans, Green & Co. 1910. Pp. xvii + 706; 154 illustrations. Price \$6.00 net.

Some branches of science are extensively intertwined with very many and very diverse branches of other sciences. The physiology of development is a notable example, since the data upon which it rests lie entangled in broad and widely different aspects of zoology and anatomy, obstetrics and gynecology, physiology and agriculture, anthropology and statistics.

Probably it is just this bewildering placement and variety of fact that has hitherto proved so effective a discouragement to authorship in this field. At any rate, the subject is here presented in a complete form for the first time. The physiology of nerve and muscle, of secretion and digestion, have long been systematically studied and the results have been many times brought together; too, studies in practical breeding, gametogenesis, and genetics have long been pursued, and the state of knowledge in each has been frequently epitomized. It is only very recently, however, that physiologists have begun to be impressed with the important relations which processes of reproduction bear to many other life processes; and only in the immediate present, in the field of heredity, is it becoming evident that the physiology of reproduction must help to solve many a problem heretofore attacked only from a very different standpoint. But, the breadth, vigor and thoroughness of Dr. Marshall's pioneering treatise are as satisfactory as the need of such a work was pressing.

Though the author has collected data of many kinds from very many different sources, his volume is much more than a digested abstract of the scattered literature; his own researches during several years on many of the important topics of reproduction have given

the insight which alone can produce so unified and clear a volume.

Perhaps the greater number of pages of the work bear mostly upon the morphological side of the subject. This is probably both necessary and advantageous in the present state of the science. A solid structural basis is especially required where and when so many elemental questions are unsolved and still trembling in the balance. Chapters II., III. and IV., dealing with the oestrous cycle and changes in the ovary are notably of this character; largely morphological also are Chapters VII. and X. concerning the accessory reproductive organs of the male, and the placenta. The first chapter treats of the breeding season of animals; all of the invertebrate phyla being considered as well as the several classes of vertebrates. Other important chapters treat of the ovary and testis as organs of internal secretion, changes in the maternal organism during pregnancy, fertilization, lactation, fertility and the determination of sex. A rather too condensed but excellently written chapter on the biochemistry of the sexual organs will be welcomed by many. Besides other things it brings together for the first time most of the data now at hand on the new and promising subject of the energetics of development.

In many of these chapters the data and theories presented are criticized in the light of the author's own researches. In this way are presented some excellent treatments of such subjects as, the internal secretory function of the ovary and the testis; Mendelism; the influence of domestication, feeding, etc., upon the recurrence of the oestrous cycle and upon fecundity; fertility, and ovulation and the ovarian changes. We may note the point of view in only one or two of these cases. The internal secretions of the reproductive organs are attributed a scope and rôle not accorded by some recent investigators; and the connection between the ovary and uterus is considered as exclusively chemical, not nervous. Again, we note that the author is not led by the study of the physiology of reproduction to accept some of the important conceptions of Mendelism. "To the physiologist therefore a

so-called unit character can not readily be regarded as something located originally in a chromosome or chromomere. . . . It may be argued, therefore, in criticism of the Mendelian conception of unit characters, that it takes little or no account of the metabolism of the organism as a whole." How great a heresy to proceed from Cambridge! The book is indeed a mine, but the function of the reviewer can not be to extract the ore.

It is pleasing to find the volume dedicated to Mr. Walter Heape, to whom we owe so great a part of what is known of the physiology of the œstrous cycle, as well as much besides that is pertinent to this volume. More pleasing still is the style in which the whole work is written. In reading this volume one never tires, and there is little chance of getting lost. Adequate reference to an enormous literature and a comprehensive index add value to the book.

Dr. Marshall's pioneering treatise brings abundant help and inspiration to investigators within the several divisions of its field, and will ably and authoritatively serve the needs of the practical breeder and gynecologist.

OSCAR RIDDLE

Methods of Organic Analysis. By HENRY C. SHERMAN, Ph.D., Professor of Food Chemistry in Columbia University. Second edition. Rewritten and enlarged. New York, The Macmillan Co. 1912. \$2.40 net.

The author has collected in this volume the methods of analysis of the more important organic compounds especially as applied to plant and vegetable substances and their manufactured products. They include such subjects as alcohols, aldehydes, sugars, oils, fats, waxes, soap, milk and preservatives. The best recognized methods have been selected and attention called to precautions necessary to secure satisfactory results.

One who wishes to know the best methods of analysis can not do better than consult this book, as the author has increased its value by adding, at the end of each chapter, a list of reference books and journal references for the past ten years. The use of this book by stu-

dents would certainly give them practise in a considerable variety of analyses and make them capable of handling any ordinary problem presented.

J. E. G.

A College Text-book on Quantitative Analysis. By H. R. MOODY, S.B. (M.I.T.), A.M., Ph.D. (Columbia), Associate Professor of Analytical and Applied Chemistry, College of the City of New York. New York, The Macmillan Co. 1912. 165 pages. \$1.25 net.

This book, as the author states, is designed to be used by those who may be taking up quantitative work by themselves or with an instructor whose classes are too large to admit of much individual attention. It contains very explicit directions regarding every detail and is intended to make obvious the unnecessary pitfalls that consume time. For the purpose for which it is designed and for use in a brief course in a high school or college this book should be of great value in training the student in exact methods of procedure; but it seems too mechanical to put in the hands of a graduate student who is making a specialty of chemistry and is approaching the subject in a broad and comprehensive manner.

J. E. G.

Qualitative Organic Analysis. By F. B. THOLE, B.Sc. (London), F.C.S., London University Exhibitioner in Chemistry, Lecturer in Organic Chemistry, East Ham Technical College, with an introduction by H. E. DUNSTAN, D.Sc. (London), Head of the Chemical Department, East Ham Technical College. London, Methuen & Co., Ltd.

In the introduction attention is called to the fact that "no royal road exists for the identification of an organic compound." The aim of this book is to afford a concise treatment of the subject on simple and logical lines, proceeding from the determination of the elements present in each case to the final characterization of the compound. The author has given a description of the common operations in practical organic chemistry, de-